

# Intelligent Agents driving Manufacturing and Supply Chain Transformation

PIDX 2025

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**WONDERBOTZ**

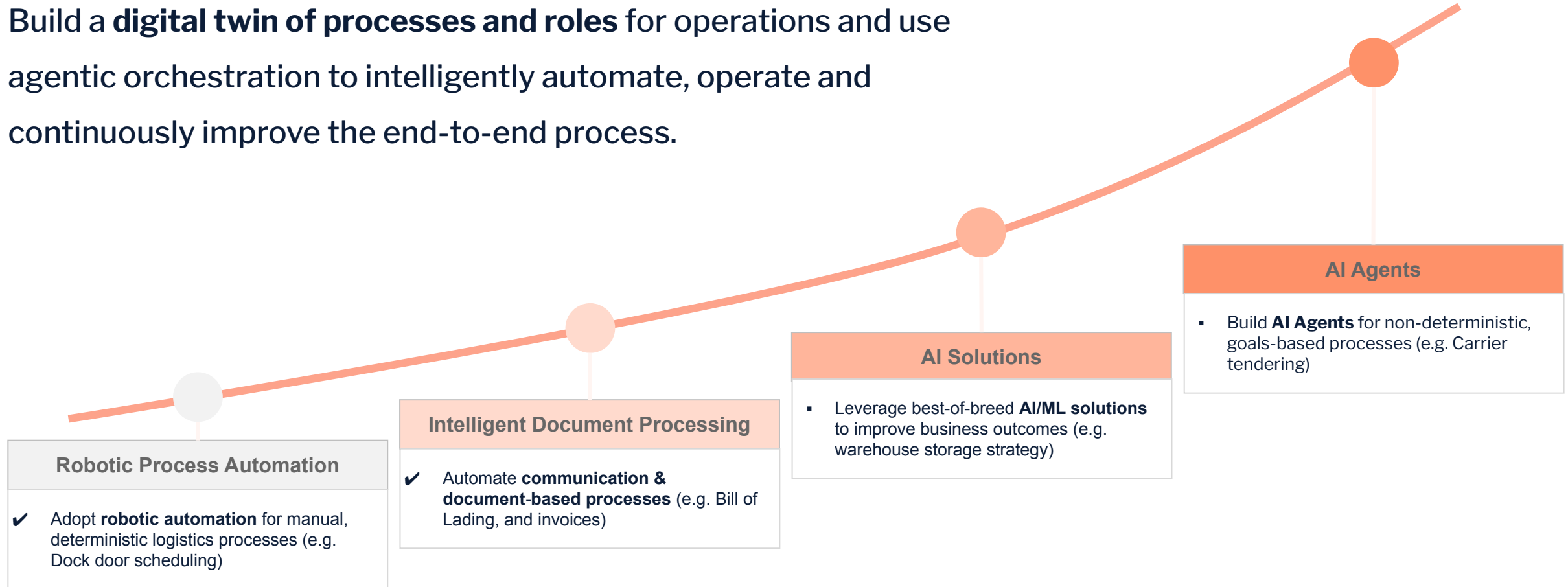


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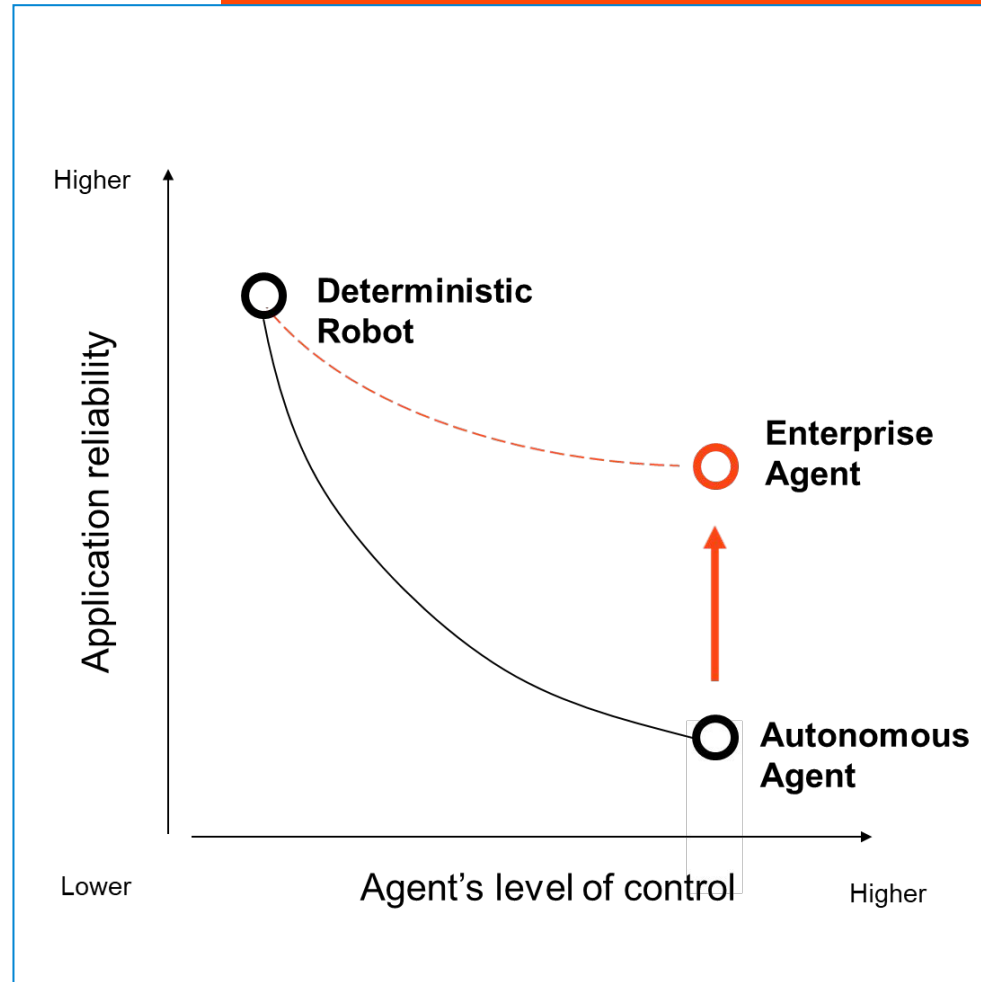
- 1. What is an Intelligent Agent?**
- 2. How do these AI agents solve problems?**
- 3. Next Frontiers in Manufacturing and Supply Chain**
- 4. Important practices to adopt**

# The agentic orchestration pathway

Build a **digital twin of processes and roles** for operations and use agentic orchestration to intelligently automate, operate and continuously improve the end-to-end process.



# Enterprise and Controlled Agents



## “Controlled Agency”

Prompt auto-tuning and model selection

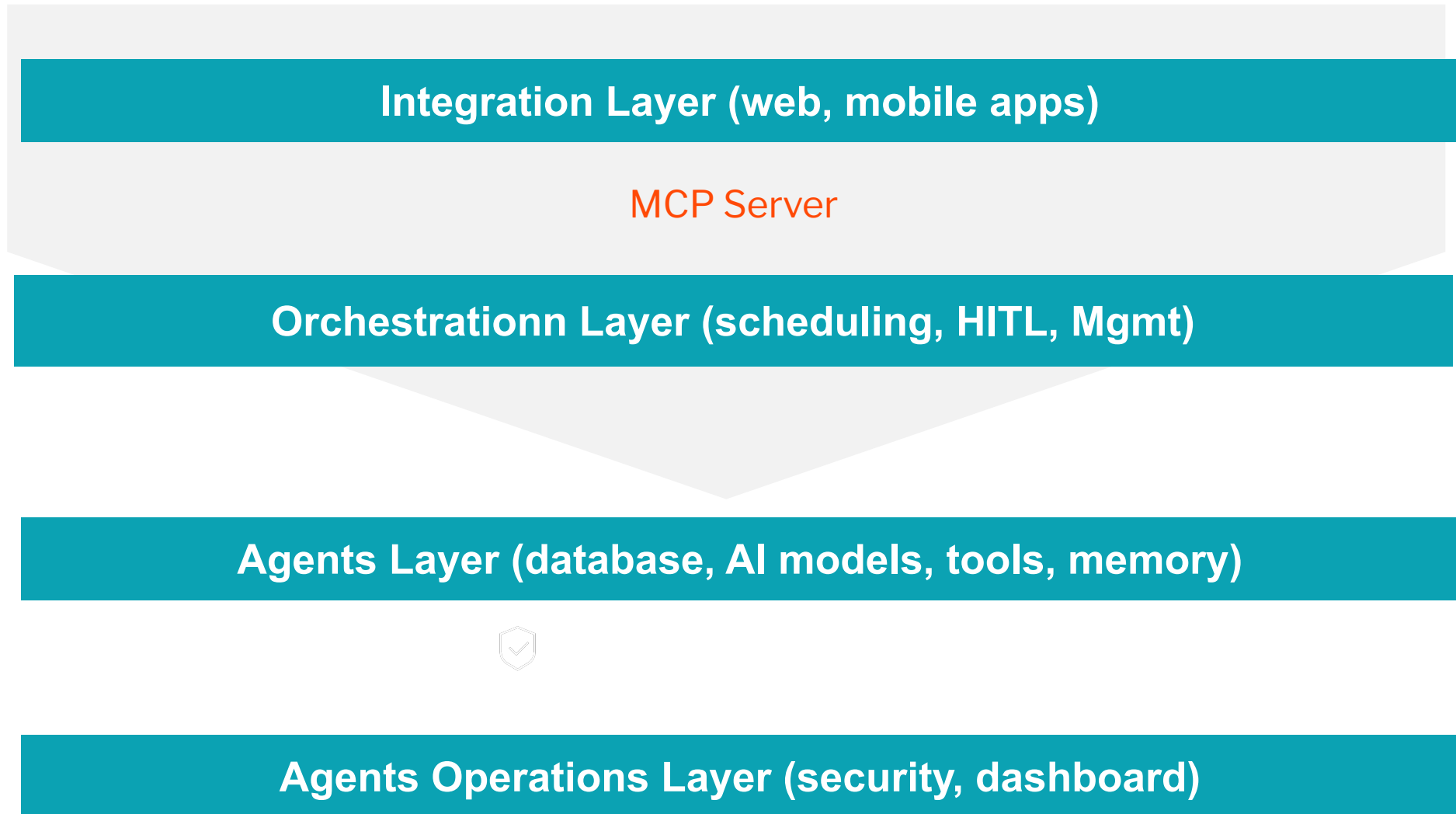
Interactive prompt experimentation

Online and Offline Evaluations

High-quality context grounding

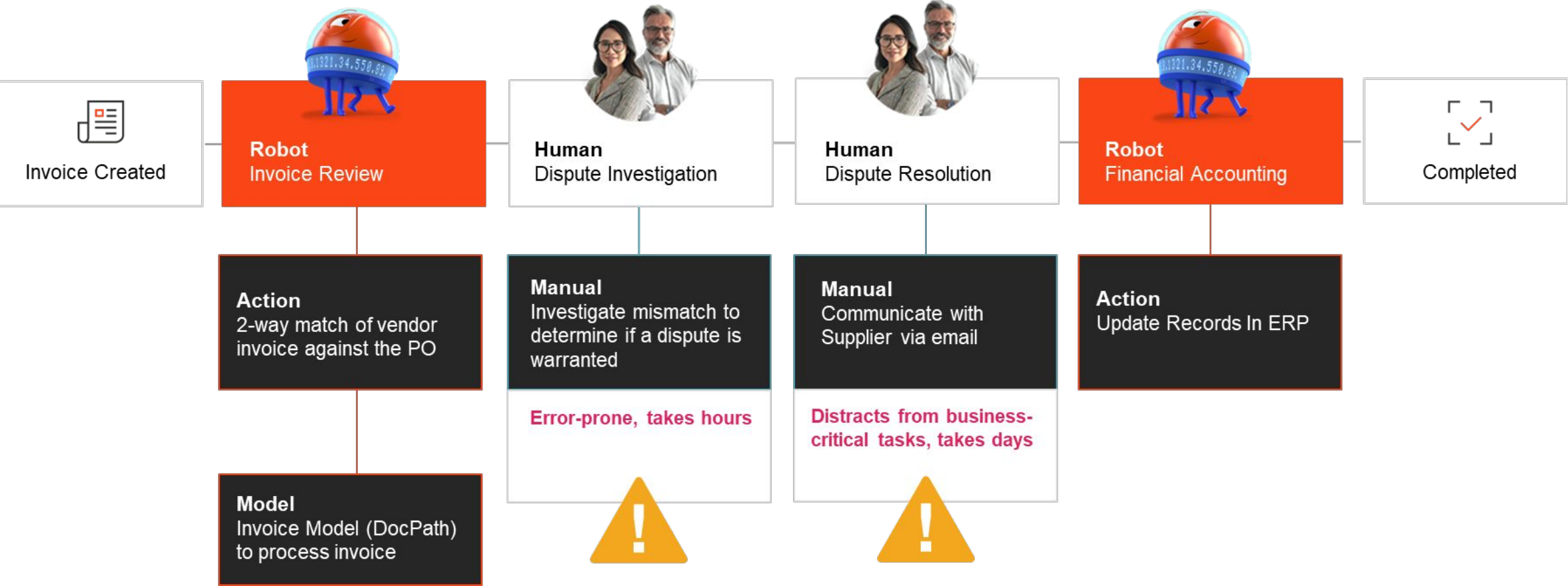
Testing agents

# How are AI Agents architected?



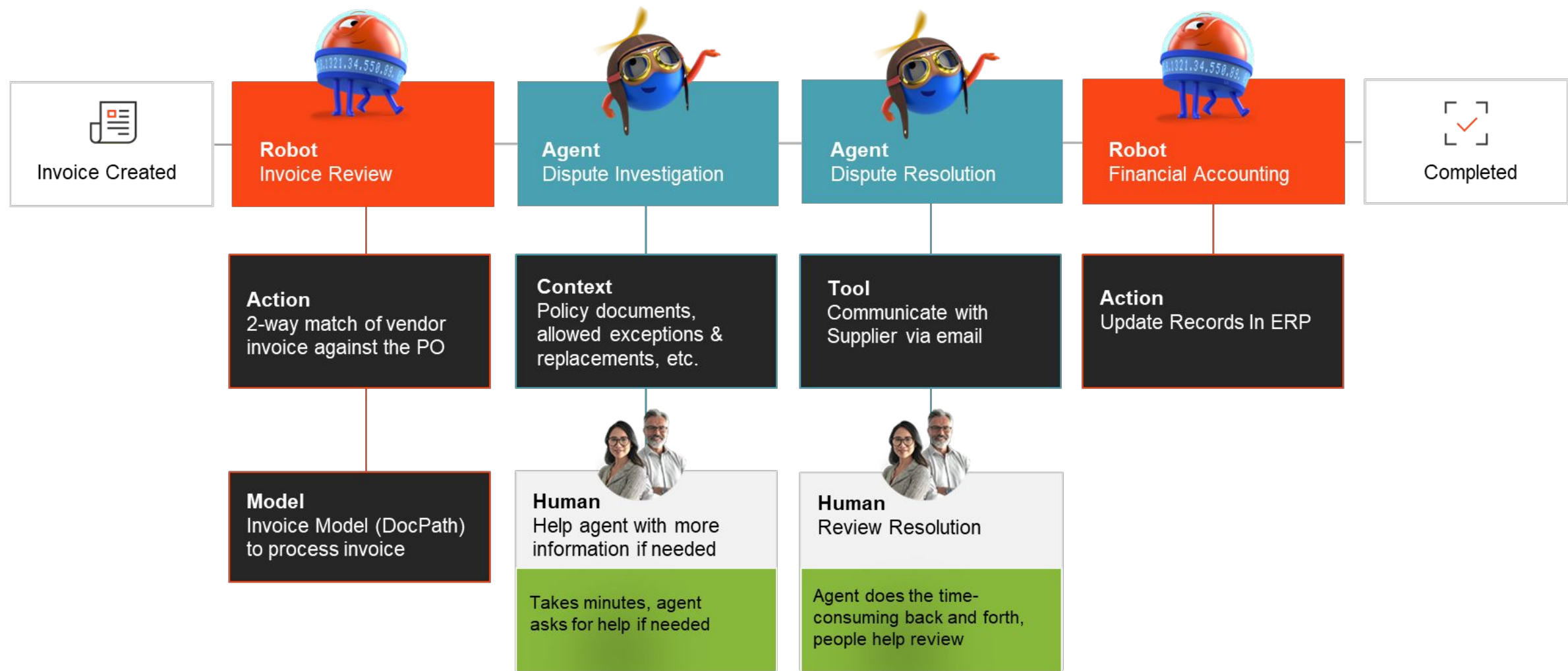
# Processing Vendor Invoices

Robotic Workflow

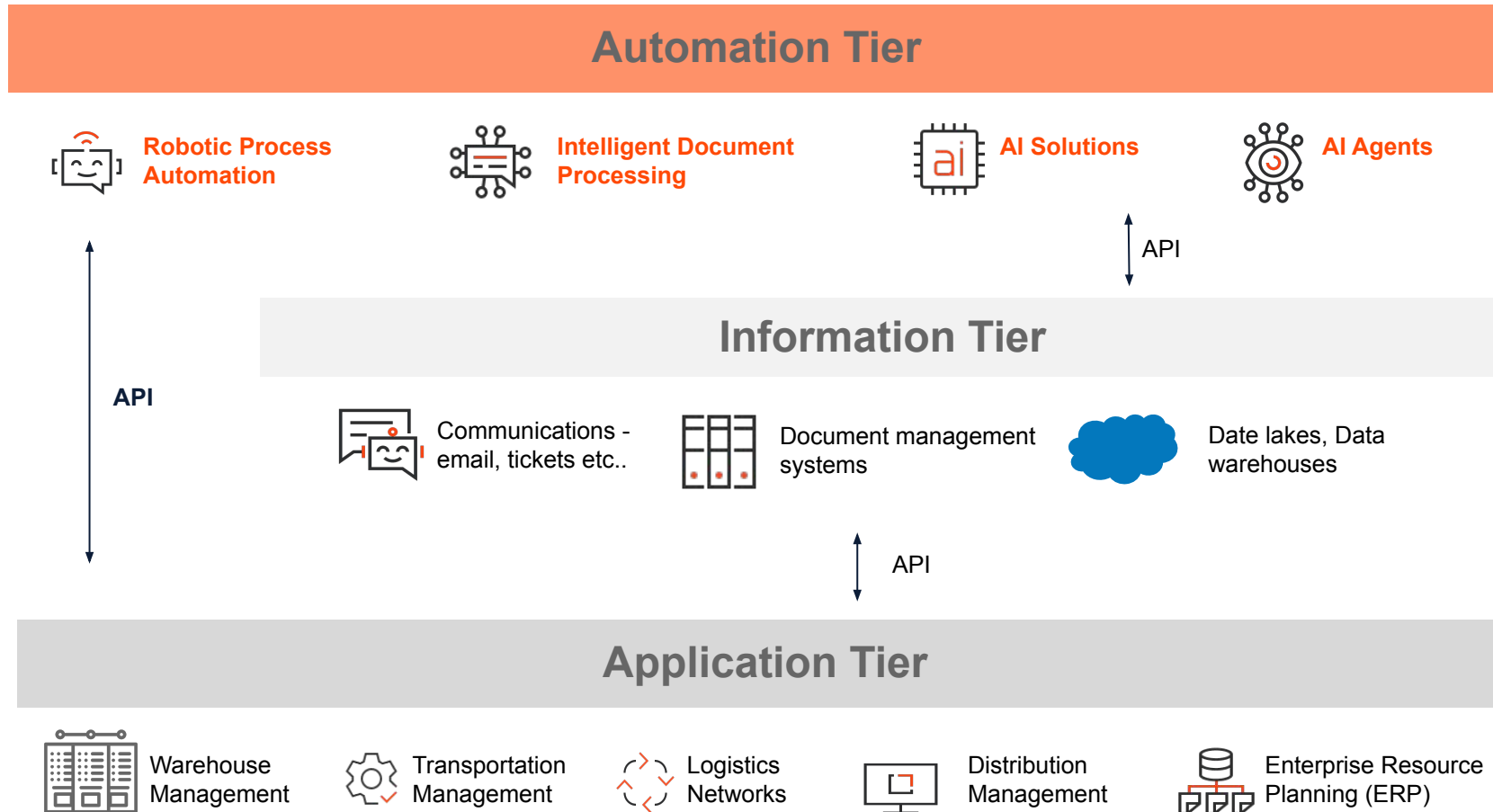


# Processing Vendor Invoices

Agentic Workflow



# The logistics automation tier



## Agentic orchestration principles

- Build a digital twin for your end-to-end processes and organizations
- Leverage the combination of robots, documents, AI solutions and AI agents for agentic orchestration of your processes
- Introduce a continuous learning loop to improve your processes
- Automate first, customize enterprise applications last



# Automate end-to-end processes

- Agentic orchestration of end-to-end-processes **enables logistics managers to make smart decisions** with a focus on customer centricity and logistics cost, while AI generates the business context, executes and improves processes autonomously.

## Warehouse manager

- Inbound document processing
- Outbound document processing

## Transportation manager

- Freight tendering & carrier selection
- Global trade document compliance

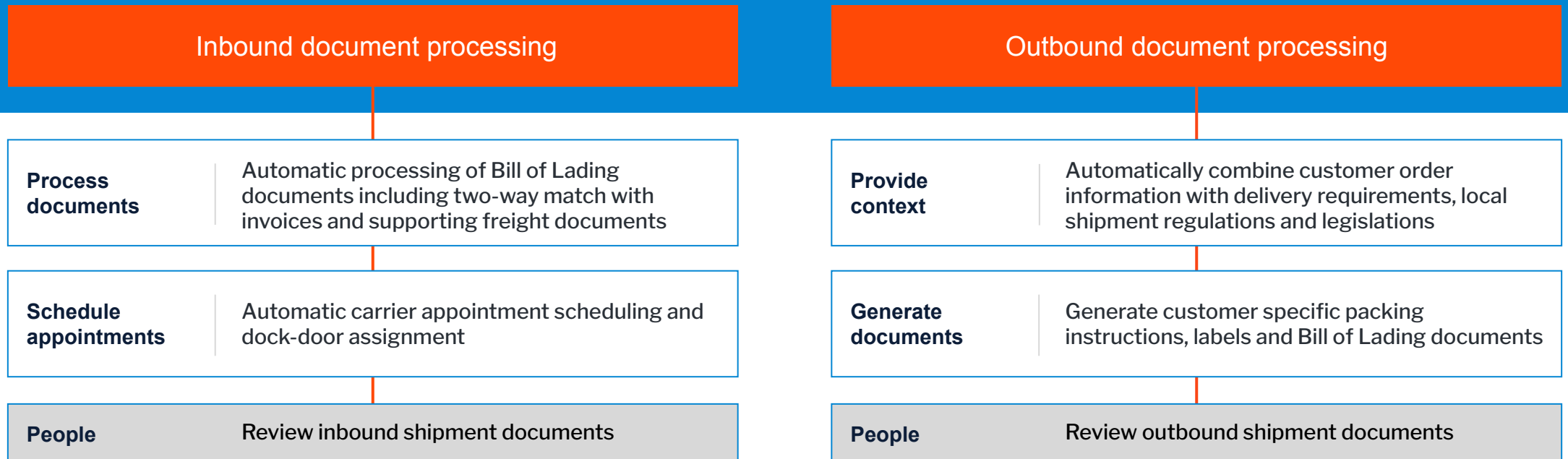
## Distribution manager

- Omni-channel inventory allocation
- Customer shipment queries



# Warehouse manager

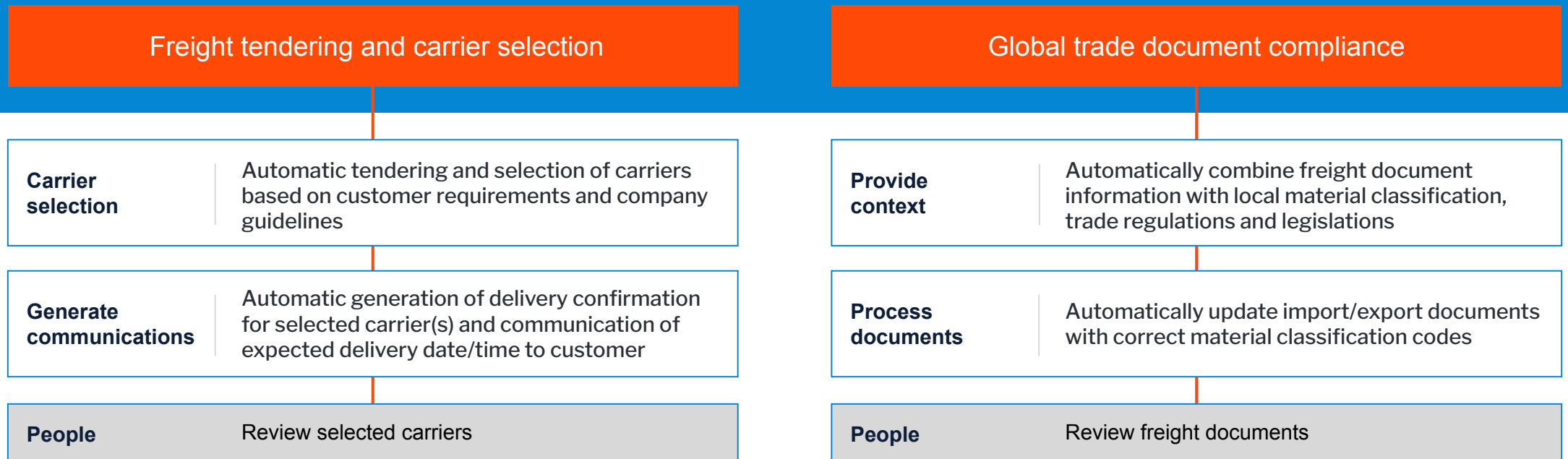
Agentic orchestration processes inbound shipment documents, schedules appointments and generates outbound shipment documents automatically





# Transportation manager

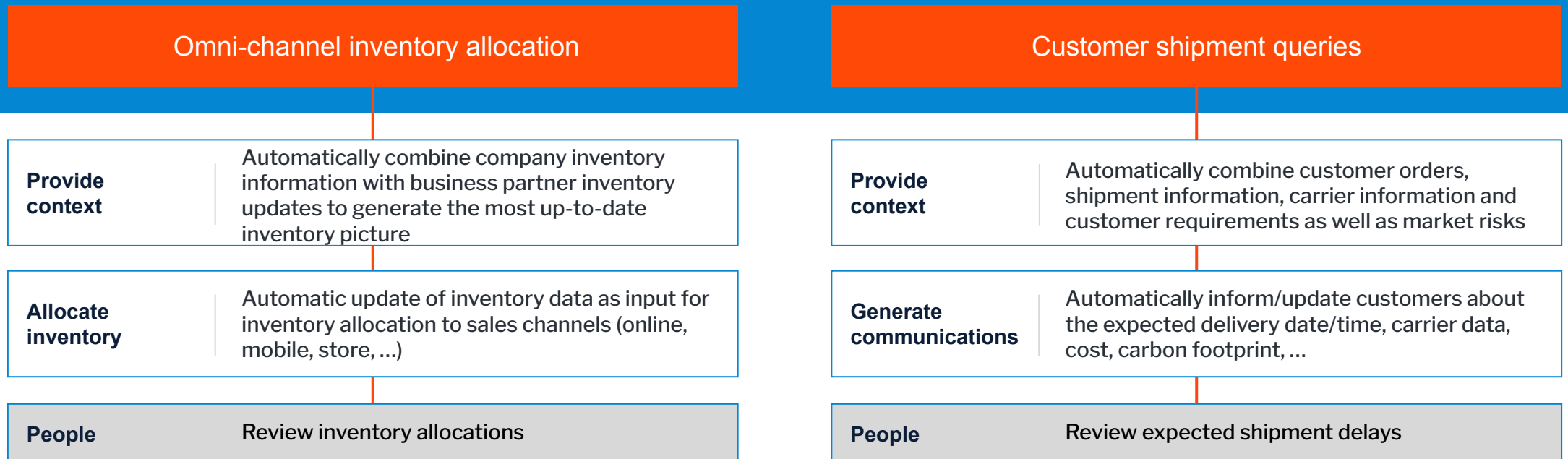
Agentic orchestration initiates carrier tendering, selects carriers, gathers expected time of arrivals, updates customers and ensures delivery compliance automatically





# Distribution manager

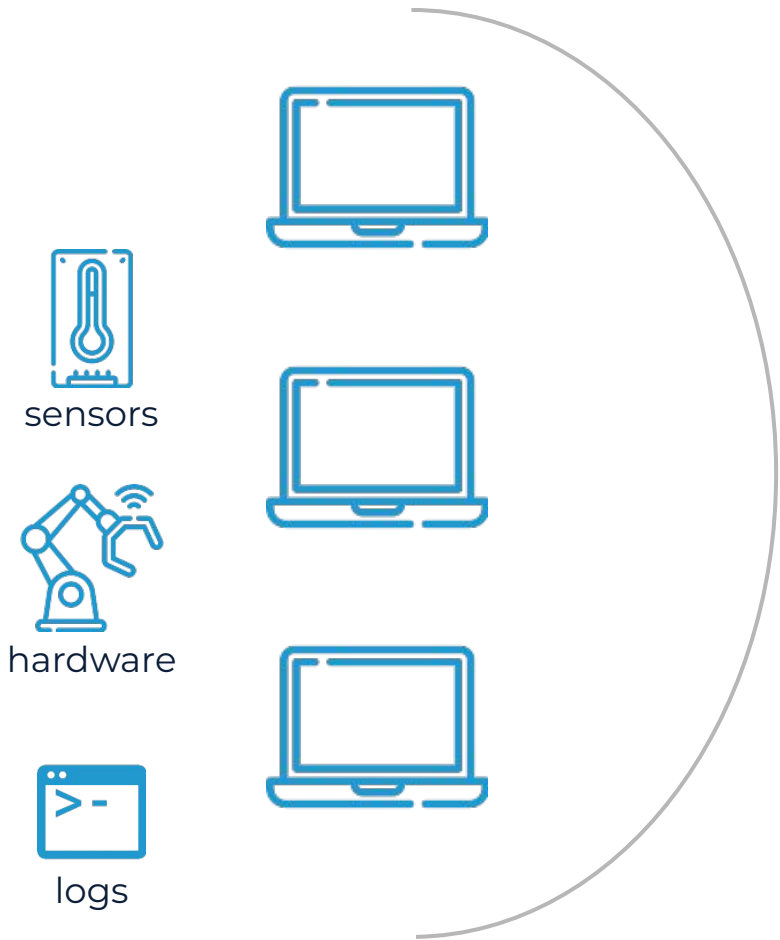
Agentic orchestration enables the allocation of inventory to sales-channels for customer order confirmations and to update customers about the delivery status.



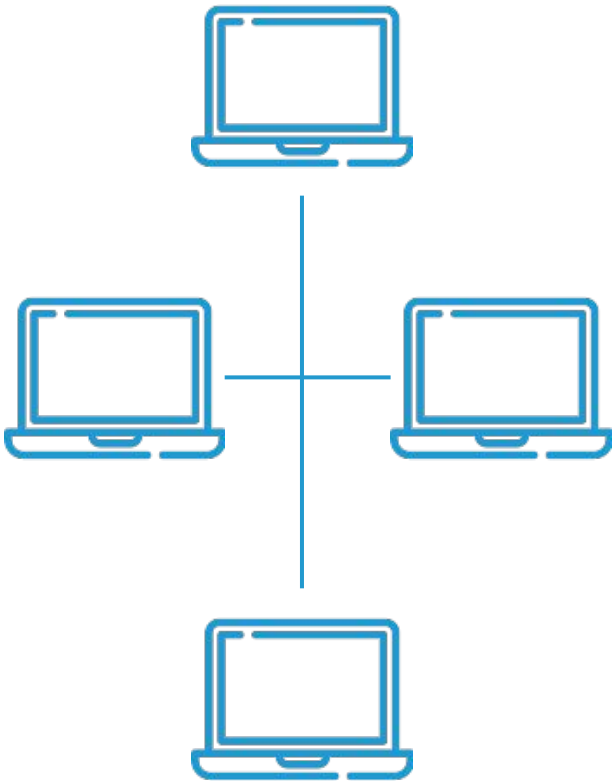
# Manufacturing Operations

**OT**

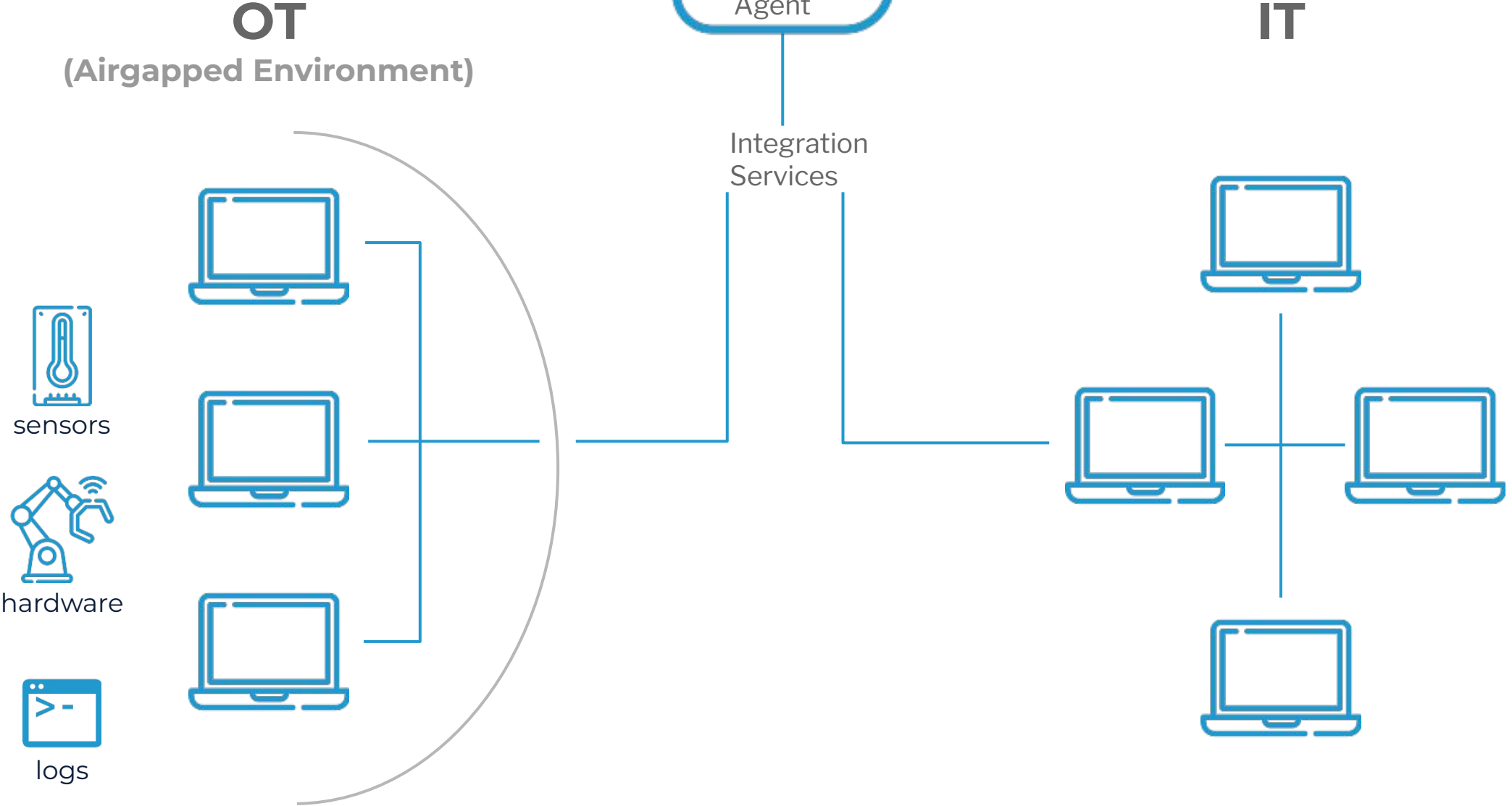
(Airgapped Environment)



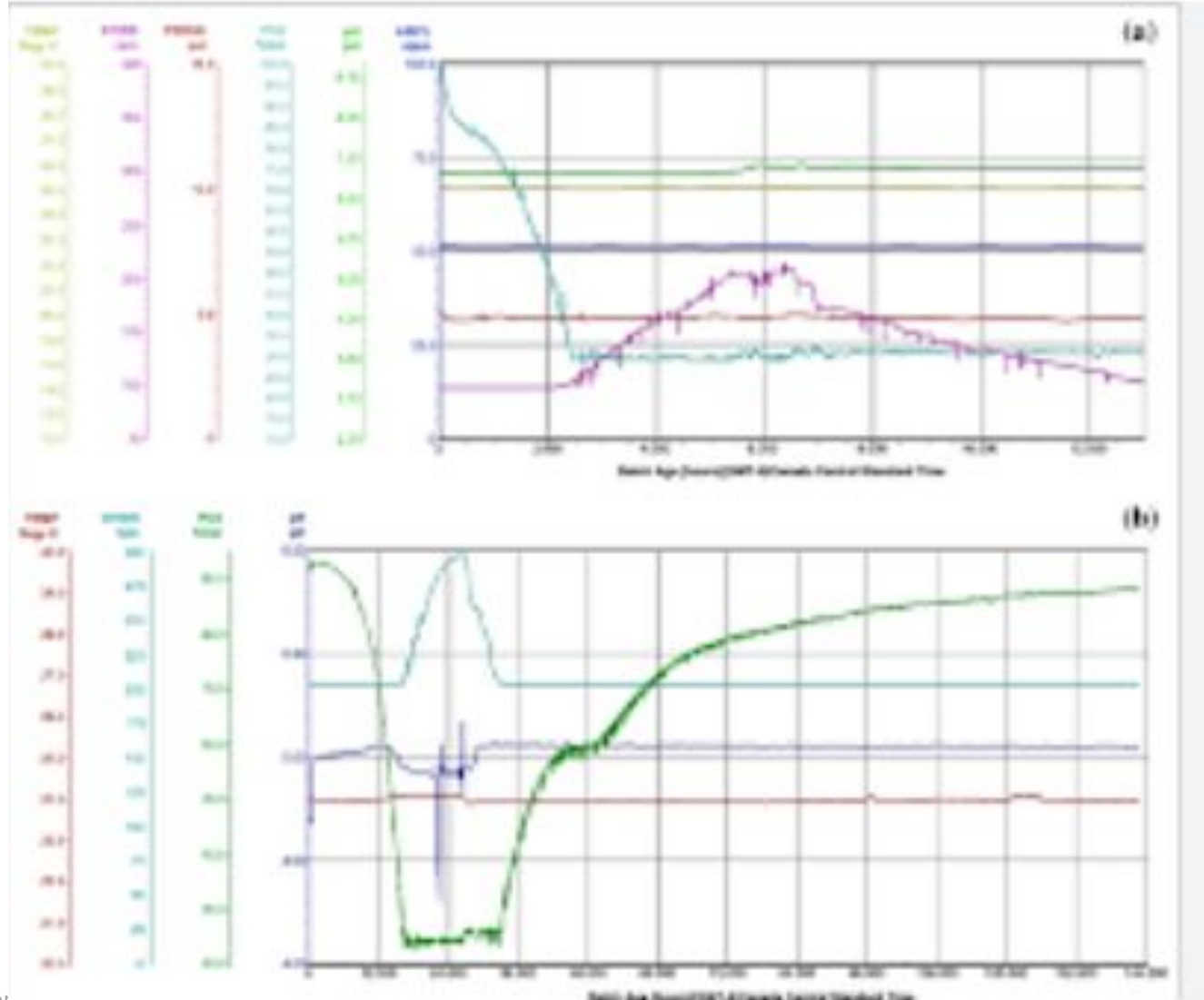
**IT**



# Manufacturing Operations Connected



# Manufacturing Operations in Industry 4.0



## AI and Agents Roles

- Edge computing for AI models integration
- AI models for predictive analysis
- Ai Agents monitoring SCADA and other data in real time and autonomously drive / suggest corrective actions
- Assure air-gapping and security of the systems and data

# Harvard Research Paper on humans working with AI

Figure 2: Average Solution Quality

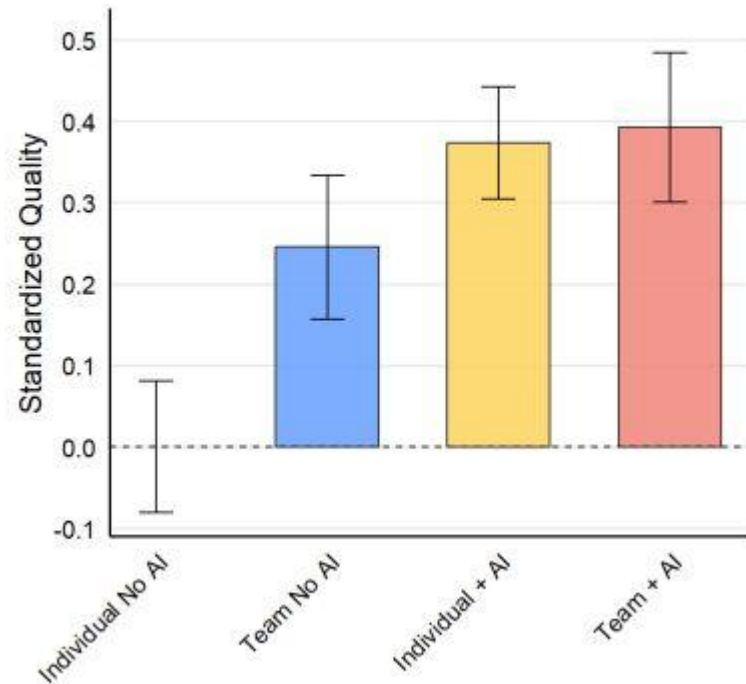


Figure 4: Time Saved

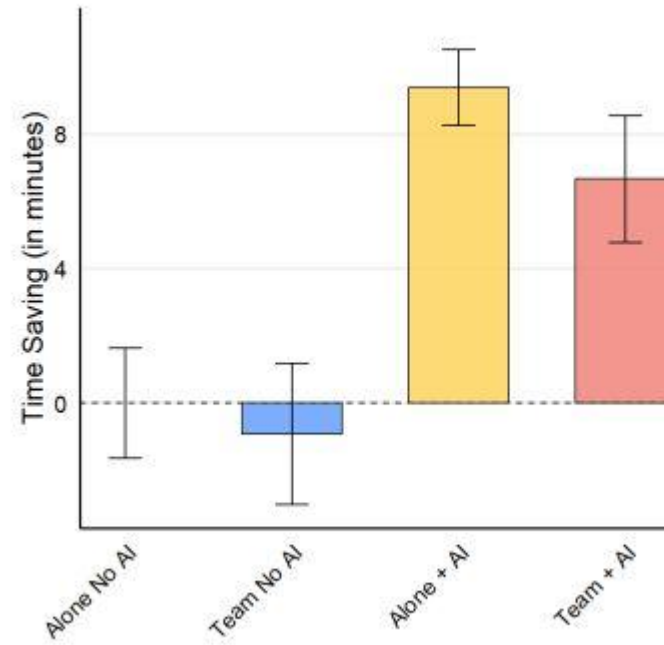
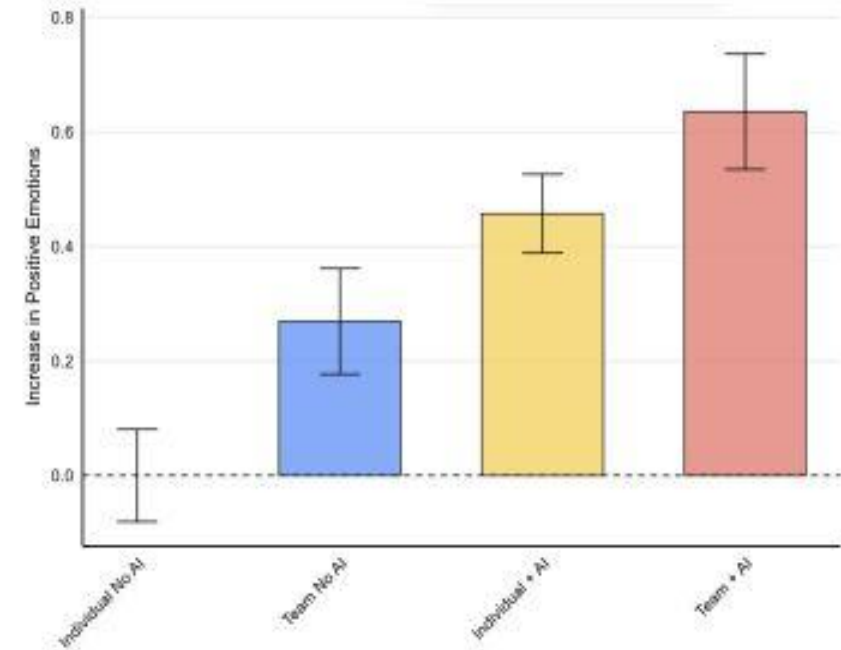


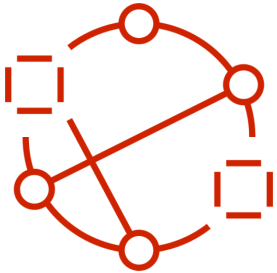
Figure 7: Evolution of Positive Emotions during the Task





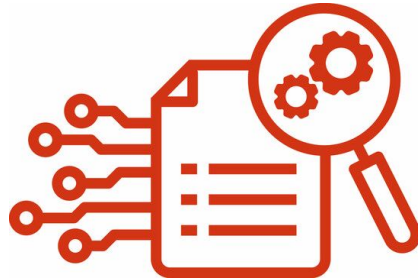
# Important practices to adopt

## Definition then Data



First make sure the definitions are accurate, then make sure data is accurate

## Authenticate, curate, and protect your data



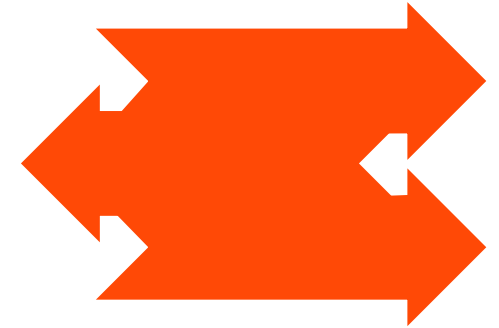
- Exposing confidential information to public AI models is inviting a breach
- Audit trails for compliance

## Measure AI Productivity



- Like people, have AI agents' accountability and responsibility
- How much better your outcomes are

## Verify AI results using expertise and/or independent sources



- Treat AI as a team member who you manage
- AI may help validate other AI results

Let's stay in touch!



**Bhavesh Joshi**  
Global Operations Transformation  
Leader driving P&L growth, supply ch...



# Thank you!

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